6773

Ohio Environmental Protection Agency

Renewal Application for a Permit to Operate

an Air Contaminant Source

International Minerals & Chemical Corp — George Shahin
Facility Name — Person to Contact

Middle Road — P.O. Box 838
Facility Address — Mailing Address

Ashtabula Ashtabula 44004 — Ashtabula Ohio 44004
City County Zip — City State Zip

0204010056 P001 — (216) 997-5221
Application No. (see attached Notice) — Telephone Area Number

1. Complete and attach one of the following appendices most appropriate to the air contaminant source. Only one appendix may accompany this application.

(Check one)
- X Appendix A, Process
- ___ Appendix B, Fuel-Burning Equipment
- ___ Appendix C, Incinerator
- ___ Appendix D, Surface Coating or Printing Operation
- ___ Appendix E, Storage Tank or Loading Facility

2. Description of Source (same as used on appendix): Electrolytic cells and decomposers; chlor-alkali process.

3. Your Identification for Source (same as used on appendix): Electrolytic cells and decomposers; chlor-alkali process

I, being the individual specified in OAC 3745-35 of the rules of the Ohio Environmental Protection Agency, hereby apply for a Permit to Operate OAC 3745-35-02 for the air contaminant source described herein.

Signature of Officer or Owner*
George Shahin
Plant Manager
Title
Nov. , 1980
Date

* As per OAC 3745-35-02(B)(1) (Permit to Operate)
See Instructions On Other Side

AP-PS-1101
8/11/77
HP 001051

emise No. __/__/__/____
urce No. __/____
plication No. __/____

APPENDIX A, PROCESS

PROCESS DATA

ame of process Chlor. Alkali Process

End product of this process Chlorine, Potassium Hydroxide, Hydrogen, Potassium Hypochlorite

Primary process equipment Electrolytic cells and decomposers

Your identification Cell floor Year Installed 1963

Manufacturer Olin Chemical Make or model Olin E-11H

Capacity of equipment (lbs./hr): Rated 20,000 Max. 20,000

Method of exhaust ventilation: ☒ Stack ☐ Window fan ☐ Roof vent
☒ Other, describe Vent scrubber system

Are there multiple exhausts? ☒ Yes ☐ No

OPERATING DATA

Normal operating schedule: 24 hrs./day, 7 days/wk., 52 wks./year.

Percent annual production (finished units) by season:
Winter 25 Spring 25 Summer 25 Fall 25

Hourly production rates (lbs.): Average 20,000 Maximum 20,000

Annual production (indicate units) 83,000 Tons
Projected percent annual increase in production ____

Type of operation: ☒ Continuous ☐ Batch

If batch, indicate Minutes per cycle — Minutes between cycles —

Materials used in process:

List of Raw Materials	Principal Use	Amount (lbs./hr.)
Salt (KCl)	Brine	16,600
Water	Potassium hydroxide and hydrogen production	16,800

A PROCESS FLOW DIAGRAM MUST BE INCLUDED WITH THIS APPENDIX. Show entry and exit points of all raw materials, intermediate products, by-products and finished products, Label all materials including airborne contaminants and other waste materials. Label the process equipment and control equipment.

Control Equipment Code:

(A)	Settling chamber	(G)	Cyclonic scrubber	(M)	Adsorber
(B)	Cyclone	(H)	Impingement scrubber	(N)	Condenser
(C)	Multiple cyclone	(I)	Orifice scrubber	(O)	Afterburner - catalyti
(D)	Electrostatic precipitator	(J)	Venturi scrubber	(P)	Afterburner - thermal
(E)	Fabric filter	(K)	Plate or tray tower	(Q)	Other, describe_____
(F)	Spray chamber	(L)	Packed tower		

15. Control Equipment data:

Item	Primary Collector	Secondary Collector
(a) Type (See above code)	L	
(b) Manufacturer	Arco Equipment	
(c) Model No.	N/A	
(d) Year installed	1980	
(e) Your identification	Vent Scrubber	
(f) Pollutant Controlled	Chlorine, HCl	
(g) Controlled pollutant emission rate (if known)	Not Known	
(h) Pressure drop	8 inches H_2O	
(i) Design efficiency	Not Known	
(j) Operating efficiency	Not Known	

STACK DATA

16. Your stack identification Scrubber Fan Discharge

17. Are other sources vented to this stack? ☐ Yes ☒ No
If yes, identify sources_____

18. Type: ☒ Round, top inside diameter dimension 10 inch
☐ Rectangular, top inside dimensions (L)_____ x (W)_____

19. Height: Above roof_____ft., above ground 30 ft.

20. Exit gas: Temp. 60 °F, Volume 1000 ACFM, Velocity 1800 ft./min.

21. Continuous monitoring equipment: ☐ Yes ☒ No
If yes, indicate: Type_____, Manufacturer_____
Make or Model_____, Pollutant(s) monitored_____

22. Emission data: Emissions from this source have been determined and such data is included with this appendix: ☐ Yes ☒ No
If yes, check method: ☐ Stack Test ☐ Emission factor ☐ Material balance

Completed by [illegible], Date 11/5/80

CONTROL EQUIPMENT

Control Equipment Code:

(A)	Settling chamber	(G)	Cyclonic scrubber	(M)	Adsorber
(B)	Cyclone	(H)	Impingement scrubber	(N)	Condenser
(C)	Multiple cyclone	(I)	Orifice scrubber	(O)	Afterburner - catalyti
(D)	Electrostatic precipitator	(J)	Venturi scrubber	(P)	Afterburner - thermal
(E)	Fabric filter	(K)	Plate or tray tower	(Q)	Other, describe
(F)	Spray chamber	(L)	Packed tower		

15. Control Equipment data:

Item	Primary Collector	Secondary Collector
(a) Type (See above code)	L	
(b) Manufacturer	Celcore Company	
(c) Model No.	N/A	
(d) Year installed	1979	
(e) Your identification	End Box Vent Scrubber	
(f) Pollutant Controlled	Mercury	
(g) Controlled pollutant emission rate (if known)	—	
(h) Pressure drop	4 in. H_2O	
(i) Design efficiency	Not Known	
(j) Operating efficiency	Not Known	

STACK DATA

16. Your stack identification End Box Vent Scrubber

17. Are other sources vented to this stack? ☐ Yes ☒ No
If yes, identify sources _____

18. Type: ☒ Round, top inside diameter dimension 8 inch
☐ Rectangular, top inside dimensions (L) _____ x (W) _____

19. Height: Above roof _____ ft., above ground 40 ft.

20. Exit gas: Temp. 140 °F, Volume 250 ACFM, Velocity 700 ft./min.

21. Continuous monitoring equipment: ☐ Yes ☒ No
If yes, indicate: Type _____, Manufacturer _____
Make or Model _____, Pollutant(s) monitored _____

22. Emission data: Emissions from this source have been determined and such data is included with this appendix: ☒ Yes ☐ No
If yes, check method: ☒ Stack Test ☐ Emission factor ☐ Material balanc

Completed by Dennis M. Allen, Date 11/21/80

CONTROL EQUIPMENT

Control Equipment Code:

(A)	Settling chamber	(G)	Cyclonic scrubber	(M)	Adsorber
(B)	Cyclone	(H)	Impingement scrubber	(N)	Condenser
(C)	Multiple cyclone	(I)	Orifice scrubber	(O)	Afterburner - catalyti
(D)	Electrostatic precipitator	(J)	Venturi scrubber	(P)	Afterburner - thermal
(E)	Fabric filter	(K)	Plate or tray tower	(Q)	Other, describe_____
(F)	Spray chamber	(L)	Packed tower		

15. Control Equipment data:

Item	Primary Collector	Secondary Collector
(a) Type (See above code)	N	
(b) Manufacturer	General Filters Co	
(c) Model No.	N/A	
(d) Year installed	1977	
(e) Your identification	Decomposer H. Coolers (24)	
(f) Pollutant Controlled	mercury	
(g) Controlled pollutant emission rate (if known)	Not Known	
(h) Pressure drop	Not Known	
(i) Design efficiency	Not Known	
(j) Operating efficiency	Not Known	

STACK DATA

16. Your stack identification Hydrogen Vent Stack

17. Are other sources vented to this stack? ☐ Yes ☒ No
If yes, identify sources_____

18. Type: ☒ Round, top inside diameter dimension 14 inch
☐ Rectangular, top inside dimensions (L)_____ x (W)_____

19. Height: Above roof_____ ft., above ground 87 ft.

20. Exit gas: Temp. 160-180 (Steam Diluted) °F, Volume 0-200 ACFM, Velocity 0-187 ft./min.

21. Continuous monitoring equipment: ☐ Yes ☒ No
If yes, indicate: Type_____, Manufacturer_____
Make or Model_____, Pollutant(s) monitored_____

22. Emission data: Emissions from this source have been determined and such data is included with this appendix: ☒ Yes ☐ No
If yes, check method: ☒ Stack Test ☐ Emission factor ☐ Material balanc

Completed by Dennis M. Ahlstrom, Date 10/21/80

CONTROL EQUIPMENT

Control Equipment Code:

(A) Settling chamber
(B) Cyclone
(C) Multiple cyclone
(D) Electrostatic precipitator
(E) Fabric filter
(F) Spray chamber
(G) Cyclonic scrubber
(H) Impingement scrubber
(I) Orifice scrubber
(J) Venturi scrubber
(K) Plate or tray tower
(L) Packed tower
(M) Adsorber
(N) Condenser
(O) Afterburner - catalyti
(P) Afterburner - thermal
(Q) Other, describe_____

15. Control Equipment data:

Item	Primary Collector	Secondary Collector
(a) Type (See above code)	N	H
(b) Manufacturer	H+P Equipment	Monsanto
(c) Model No.	N/A	N/A
(d) Year installed	1977	1977
(e) Your identification	Hydrogen Cooler	Hydrogen Demistors (2)
(f) Pollutant Controlled	Mercury	Mercury
(g) Controlled pollutant emission rate (if known)	Not Known	Not Known
(h) Pressure drop	Not Known	2 inches H_2O
(i) Design efficiency	Not Known	Not Known
(j) Operating efficiency	Not Known	Not Known

STACK DATA

16. Your stack identification Hydrogen Vent Stack

17. Are other sources vented to this stack? ☐ Yes ☒ No
If yes, identify sources_____

18. Type: ☒ Round, top inside diameter dimension 14 inch
☐ Rectangular, top inside dimensions (L)_____ x (W)_____

19. Height: Above roof_____ft., above ground 88 ft.

20. Exit gas: Temp. 160 - 180 °F, Volume 0 - 200 ACFM, Velocity 0 - 187 ft./min.
Steam diluted

21. Continuous monitoring equipment: ☐ Yes ☒ No
If yes, indicate: Type_____, Manufacturer_____
Make or Model_____, Pollutant(s) monitored_____

22. Emission data: Emissions from this source have been determined and such data is included with this appendix: ☒ Yes ☐ No
If yes, check method: ☒ Stack Test ☐ Emission factor ☐ Material balance

Completed by Dennis M. Ahlstrom, Date 11/21/80

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

JAN 30 1978

Mr. George Shahen, Plant Manager
IMC Chemical Group, Inc.
Ashtabula Operations
Post Office Box 858
Ashtabula, Ohio 44004

Dear Mr. Shahen:

We have evaluated the report of mercury emission testing by Midwest Research Institute (MRI) at the IMC Chemicals, Ashtabula, Ohio, mercury cell chlor-alkali plant, performed October 25-28, 1977. We find the tests to be valid and to demonstrate compliance with the mercury National Emission Standards for Hazardous Air Pollutants (NESHAPS) for the hydrogen and end-box ventilation gas streams. During the tests, we also observed adherence to the approved design, maintenance, and housekeeping practices necessary to demonstrate compliance with the mercury NESHAPS for the cell room ventilation system. Please be advised that compliance with the mercury NESHAPS must be maintained at all times.

A copy of the MRI test report is attached. Should you have any questions on these matters, please contact Mr. Bruce Varner of my staff at (312)-353-2086.

Very truly yours,

David Kee, Chief
Air Enforcement Branch
Enforcement Division

Attachment

cc: Walter R. Watson, Director (without attachment)
Manufacturing and Engineering
Electrochemical Division

Richard Gullickson (with attachment)
Environmental & Safety Specialist
International Minerals and Chemical Corp.

TABLE 1. SUMMARY OF MERCURY EMISSIONS - IMC MERCURY CELL PLANT; ASHTABULA, OHIO

Run	Date	Mercury emissions (g/day)[a/] Federal Register[b/] End-box	Federal Register[b/] Hydrogen	Draft revisions[c/] End-box	Draft revisions[c/] Hydrogen	Chlorine production (kgpd)[c/]	Chlorine production (tpd)[a/]
1-H	Oct 25, 1977		197		209	82,506	90.9
2-H[d/]	Oct 26		217		189	82,874	91.4
1-E	Oct 27	37		27		71,954	79.3
2-E		49		54		77,793	85.8
3-E	Oct 28	59		53		81.837	90.2
3-H			301		316	83,110	91.6
Average		48	239	45	238		

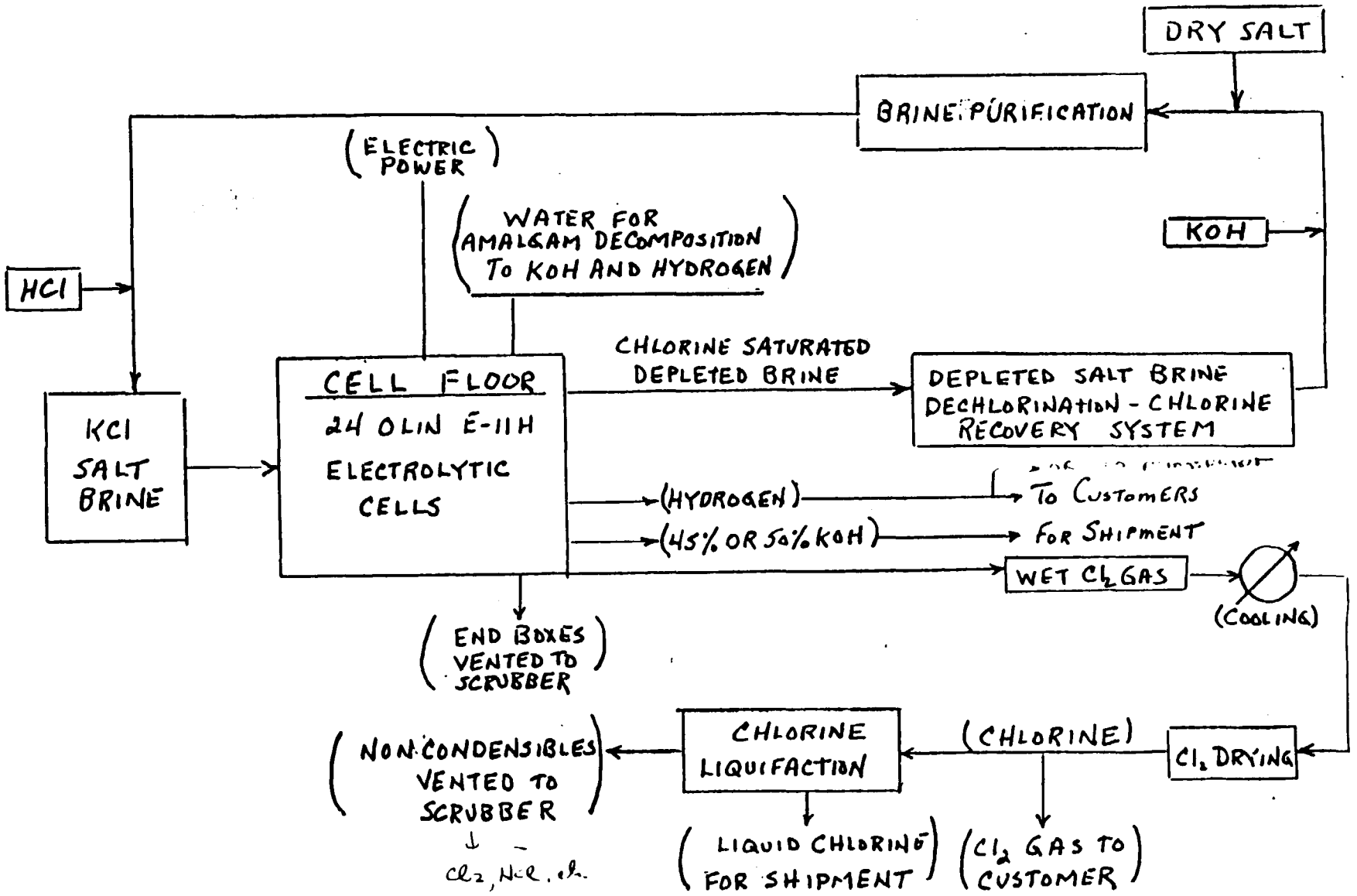
a/ g/day - grams per day.
kgpd - Kilograms per day (rate during run only).
tpd - tons per day (rate during run only).

b/ Federal Register - published methods of April 6, 1973

c/ Draft revisions - proposed revisions of October 13, 1977.

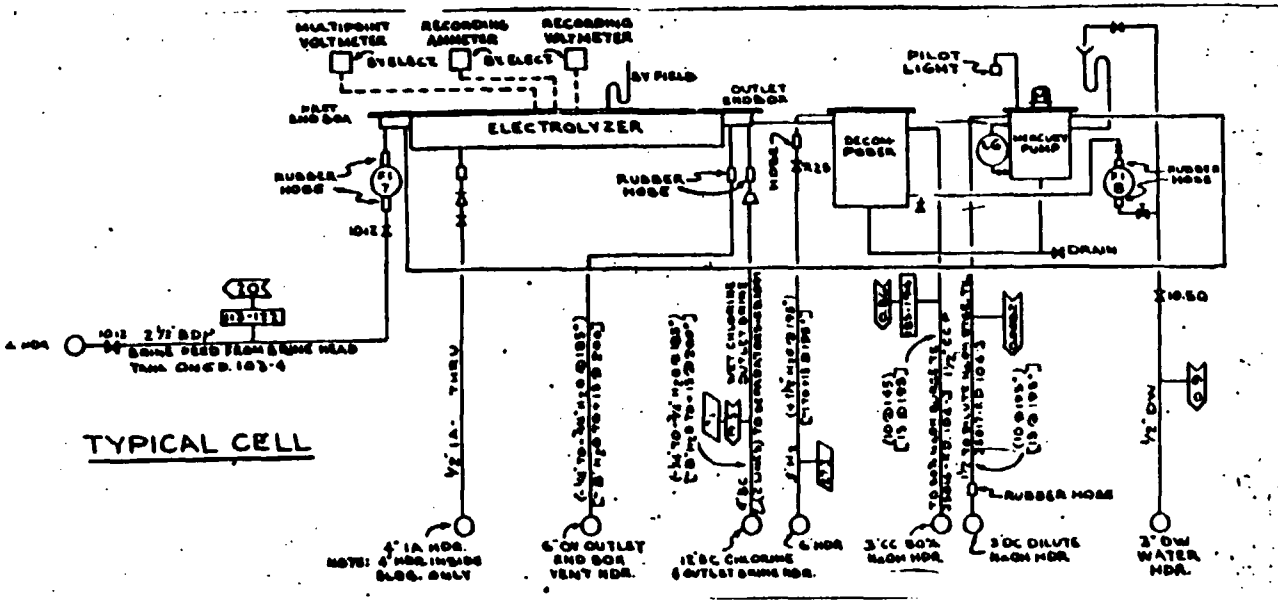
d/ Sample time of only 75 minutes instead of 120 minutes.

HP 001058



CHLOR-ALKALI PROCESS FLOW DIAGRAM

HP 001059



NOTE:

1. MERCURY PUMP & CELL DISCONNECT SWITCHES TO BE INTERLOCKED TO AFFORD THE FOLLOWING OPERATION:
   1. FAILURE OF MERCURY PUMP TO OPERATE CELL SWITCH & SOUND AUDIBLE ALARM.
   2. OPERATION OF CELL SWITCH DOES NOT AFFECT PUMP OPERATION.
   3. DELIBERATE STOPPING OF PUMP BY PUSHBUTTON DOES NOT AFFECT CELL OPERATION.

HP 001060